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Reactions of activated organonickel σ-complexes with elemental (white) phosphorus

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Abstract

The reactivity of organonickel σ-complexes of the type [NiBr(Ar)(bpy)] (Ar is 2,4,6-tr--methylphenyl (Mes) or 2,4,6-triisopropylphenyl (Tipp); bpy is 2,2′-bipyridine) toward elemental (white) phosphorus was studied. For the reaction to occur, the complexes must be activated by removal of the bromide anion from the coordination sphere of nickel. This can be achieved either in the presence of halogen scavengers or by electrochemical reduction. The arylphosphinic acids ArP(O)(OH)H formed by hydrolysis of organic nickel phosphides are the major reaction products of the overall process. © 2013 Springer Science+Business Media New York.

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Keywords

arylphosphinic acids, electrochemical activation, organic phosphides, organonickel σ-complexes, white phosphorus